Union Park Block 4, Union Park, Land at Bulls Bridge Industrial Estate, Hayes, UB3 4QQ

Ecological Enhancement Scheme

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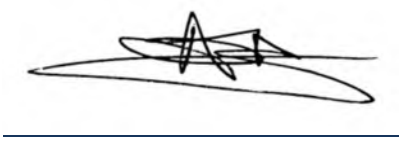

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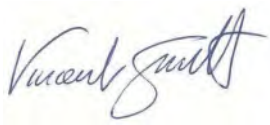

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PROTECTED SPECIES

This report contains sensitive information relating to protected species. The information contained herein should not be disseminated without the prior consent of Ecology Solutions.

Contents

Plans

Appendices

1. Introduction

1.1. Ecology Solutions was commissioned in October 2024 Ark UP4 Limited to provide an Ecological Enhancement Scheme (EES) for the site at Union Park, land at Bulls Bridge Industrial Estate, Hayes, UB3 4QQ.

1.2. Ecology Solutions has conducted ecological survey work of the wider Union Park site in 2018 and 2020. This work was previously commissioned by Bruceshaw on behalf of Ark Estates 2 Limited and related to the redevelopment of Union Park and the construction of three data centre blocks, entitled UP1, UP2 and UP3. These blocks are currently under construction.

1.3. A further data centre block (Union Park Block 4; UP4) is now proposed to the west of the wider Union Park site. This block will adjoin to the permitted UP3 block and will include an accompanying energy centre with associated landscaping and infrastructure.

1.4. This report details the ecological enhancement measures to be implemented at the site, and the management requirements necessary to ensure that these measures are provided in the long term. This report is based on the 'Block 4 Landscape Masterplan, MWL-0474-SEW-ZZ-DR-L-100003, P12' produced by Murdoch Wickham (the landscape architects) and the habitat survey conducted by Ecology Solutions in October 2024.

2. Baseline Conditions

2.1. Site Survey

2.1.1. The site was surveyed in October 2024 based on UK Habitat Classification (UKHab)[1] methodology as recommended by Natural England. Although not a requirement due to distance, the section of the Grand Union Canal flowing nearby to the site was also subject to a River Condition Assessment (RCA) by an accredited Modular River Physical Survey (MoRPh) surveyor in October 2024. Habitat descriptions are provided below with further details contained within the Ecological Assessment produced by Ecology Solutions.

2.2. Site Characteristics

2.2.1. The site is approximately 1.26ha in size and situated within the London Borough of Hillingdon. There is an existing building on site, which has a total area of circa 3,500sqm of floorspace and was formerly occupied by Addison Lee for the repair, maintenance, and replacement of private hire vehicles. This building, along with the associated hardstanding, dominates the site. This building is expected to be demolished during consideration of the planning application. Small parcels of ephemeral habitat are located in the north and south of the site and a treeline is located in the southeast. Individual trees and ornamental shrub species are also present. Broadleaved woodland occupies a small area within the west of the site and extends southwards to the Grand Union Canal.

2.2.2. The Great Western Main Line railway borders the north of the site and the wider Union Park construction site the east. The wider landscape is predominantly industrial with residential land situated farther afield to the southwest.

2.3. Designated Sites

2.3.1. There are no statutory sites within or directly adjacent to the site. The closest statutory site is Yeading Meadows Local Nature Reserve (LNR), located approximately 2.5km north of the site. The LNR is designated for its expanse of species-rich wildflower meadows, hosting an array of invertebrate species including Rosel's Bush Cricket *Roeseliana roeselii*, Shield Bugs, Skipper Buttlerflies and Moths.

2.3.2. There are no non-statutory sites within the site. London Canals Site of Importance for Nature Conservation (SINC) is located immediately adjacent to the site and contains the off-site woodland separating the site from the Grand Union Canal. SINCs are London's equivalent of Local Wildlife Sites. They are designated due to the important habitats they support They are provided a high level of protection within the planning system. SINCs are organised via a hierarchy; in order of importance, these are: Sites of Metropolitan Importance, Borough Importance (Grades 1 and 2) and Local Importance (the lowest tier). London Canals SINC is a Site of Metropolitan Importance. The area includes the Grand Union Canal and its riparian zone. The SINC supports a wide range of aquatic flora, amongst which are a number of locally uncommon species including Narrow Leaved Water Plantain

[1] UKHab Ltd (2023) UK Habitat Classification Version 2.0 (at https://ukhab.org)

Alisma lanceolatum, Rigid Hornwort *Ceratophyllum demersum* and Shining Pondweed *Potamogeton lucens*. Many waterside plants including several locally rare species grow on the brickwork and banks of the canal. The canals also support important invertebrate fauna, a diverse fish community and breeding waterfowl.

2.4. Habitats

Developed Land; Sealed Surface

2.4.1. The site primarily includes hardstanding associated with the buildings, including an access road and carparking areas. Areas of car parking were being utilised for open storage space at the time of survey. Building materials and machinery were being stored here within the west of the site. Lighting is present throughout the area and Ragwort *Senecio jacobaea* was the only species recorded within.

Industrial Building

2.4.2. Two buildings are present within the site. Building B1 is split into two sections: Buildings B1a and B1b. Building B1a is a two-storey structure constructed from brick. It has a shallow pitched roof, formed of corrugated metal sheeting. The building is in good condition overall, with no damage to brickwork observed during the survey. Internally, the building is in regular use as offices.

2.4.3. Building B1b is a three-storey industrial warehouse with two metal roller doors on the southern, western and northern aspects. The building has a shallow pitched roof of corrugated metal sheeting with skylights. Externally, the building is cladded in metal panelling with a corrugated metal skin along the bottom. The building is in good condition overall with no slipped or missing metal panels noted. Internally, the warehouse is operational, in regular use and well lit.

2.4.4. Building B1 is expected to be demolished during consideration of the planning application.

2.4.5. Building B2 is located in the east of the site and is a prefabricated three-storey unit constructed from metal. The structure has a flat roof, in use as development offices.

Broadleaved Woodland

2.4.6. A small area of broadleaved woodland is present to the west of the site, extending southward towards the Grand Union Canal. The canopy is dominated by Sycamore *Acer pseudoplatanus*, with scattered Ash *Fraxinus excelsior*. The woodland understorey comprises primarily of Traveller's Joy *Clematis vitalba*, Hawthorn *Crataegus monogyna* and Dog Rose *Rosa canina*, with occasional occurrences of Yew *Taxus baccata* and Elder *Sambucus nigra*. Ground flora is scarce with large quantities of leaf litter with occasional Ivy and Ash saplings.

Ruderal or Ephemeral

2.4.7. Three areas of ruderal / ephemeral habitat are present within the site. These areas appear to have previously constituted modified grassland but have since become disturbed and dilapidated. Now, the areas consist largely of bare ground used for the storage of materials.

2.4.8. Ephemeral EP1 is located to the south of the site and is dominated by Knotgrass *Polygonum aviculare*, with occasionally occurring Perennial Rye Grass *Lolium perenne,* Greater Plantain *Plantago major*, Dandelion *Taraxacum officinale* and Spiny Sowthistle *Sonchus asper.* Rarely occurring species include Canadian Fleabane *Conyza canadensis*, Willowherb *Epilobium* sp., Annual Meadow-grass *Poa annua,* Perforate St John's Wort *Hypericum perforatum* and Buddleia *Buddleja davidii* (categorised as an invasive species in London by the London Invasive Species Initiative (LISI)).

2.4.9. Ephemeral EP2 is situated in the north of the site, a large metal container was being stored in and adjacent to the area at the time of the survey. Species present include Scarlet Pimpernel *Anagallis arvensis*, Wood Dock *Rumex sanguineus*, Common Nettle *Urtica dioica*, Creeping Cinquefoil *Potentilla reptans*, Field Speedwell *Veronica persica*, Knot Grass, Fennel *Foeniculum vulgare*, Spurge *Euphorbia* sp., Prickly Sow-thistle *Sonchus asper*, Bristly Oxtongue *Picris echioides,* Ragwort, Hoary Plantain *Plantago media*, Canadian Fleabane, Traveller's Joy and Buddleia. The northern boundary of the site comprises Ephemeral EP3. This area is a continuation of EP2 but exhibits a greater amount of bare ground, with grass and herb species occurring in lesser densities throughout the area.

Introduced Shrub

2.4.10. Four small areas of ornamental shrub planting are present to the south of Building B1. Species present include Box-leaved Honeysuckle *Lonicera pileata, Portuguese* Laurel *Prunus lusitanica,* Field Rose *Rosa arvensis*, Thistle *Cirsium sp.,* in addition to encroaching species including Canadian Fleabane, Spiny Sowthistle, Ivy and Buddleia.

Trees

2.4.11. Two small Alder *Alnus glutinosa* trees are present to the southwest of Building B1, within the carparking area.

Line of Trees

2.4.12. One line of trees is present to the southeast of Building B1 and west of Building B2. The treeline separates the car parking area from a pedestrian area around Building B2. The feature comprises of large Portuguese Laurel specimens and Hornbeam *Carpinus betulus* with less frequent Alder. Trees are approximately 8m in height, and the feature overall, 2m wide. The understorey includes Box-leaved Honeysuckle, Bramble and Portuguese Laurel, with a sparse covering of Ivy.

Canal (Off-site)

2.4.13. The Grand Union Canal flows parallel to the southern site boundary and is separated from the site via the broadleaved woodland detailed above, in addition to a metal fence and off-site scrub habitat. The off-site woodland is consistent with that contained on-site, but additional species are present including Elder, Hawthorn, Bramble, and Guelder Rose *Viburnum opulus*. The canal and surrounding environs are not under the applicant's control. The canal is additionally designated a SINC, as is the adjacent off-site woodland located within the riparian zone.

2.4.14. The canal and its riparian zone are located off-site, apart from a small area of woodland located in the northwest of the site. Along the canal is a towpath, lined by thin strips of grassland, comprising a small portion of the riparian zone. Species present include Creeping Cinquefoil, Yarrow *Achillea millefolium*, Ivy, White Clover *Trifolium repens*, Cow Parsley *Anthriscus sylvestris* and Buddleia. Oak *Quercus* sp. trees are present along the tow path of the canal.

2.4.15. The main channel is located approximately 14m from the site boundary along almost its entire length. The site boundary extends southwards slightly in the northwest, meaning that the canal is six metres from the site boundary at its closest point. Boats were moored along the banks and travelling along the watercourse during the RCA. No aquatic or marginal vegetation is present due to the concrete sidings of the watercourse.

2.4.16. The River Condition Assessment yielded a preliminary condition score of -1.14, which falls within the Poor condition range.

2.5. Protected Species

Bats

2.5.1. The buildings and trees within the site were assessed for their suitability to support roosting bats during the initial site visit in October 2024. The buildings within the site are not suitable for roosting bats, on account of their structure and lack of Potential Roosting Features (PRFs). They are in good condition and regular use. The on-site trees additionally have no PRFs. The Grand Union Canal to the south and Great Western Railway to the north are flanked by trees and off-site woodland, providing suitable commuting corridors for bats. Opportunities for bats on-site are limited to the small area of woodland in the west.

Badgers

2.5.2. The site offers limited opportunities for Badgers. No Badger setts or evidence of the species was recorded during the survey. Dispersal of this species would be greatly impacted via the presence of the Grand Union Canal, Great Western Railway, and expanse of industrial land in the site's vicinity. It is considered that this species is absent from the site.

Hedgehogs

2.5.3. No evidence of Hedgehog *Erinaceus europaeus* was recorded during the survey work undertaken. Opportunities are limited to the on-site and off-site woodland. The canal and surrounding industrial land use may present a dispersal barrier to this species, but its presence on-site cannot be ruled out.

Otter

2.5.4. No evidence of Otter *Lutra lutra* was observed during the surveys but given the site's close proximity to the Grand Union Canal, the potential future presence of Otter along the southern site boundary cannot be ruled out. Metal fencing north of the woodland does provide a barrier to dispersal and as such, Otters are not expected to actively use (or be able to gain access to) the site.

Water Vole

2.5.5. No evidence of Water Vole *Arvicola amphibius* was recorded along the Grand Union Canal during the surveys undertaken. Given the lack of suitable emergent vegetation and cover, along with disturbance from walkers and boats and the modified banks, the presence of Water Vole within this stretch of watercourse is considered unlikely.

Other Mammals

2.5.6. Evidence of Fox *Vulpes vulpes* was noted in the off-site woodland. It is considered that small common mammal species could be present within the site such as Brown Rat *Rattus norvegicus*. It is considered unlikely that any notable species would be present.

Birds

2.5.7. The woodland, treeline and individual trees provide the greatest value for birds utilising the site, but given their limited availability, the off-site woodland presents the greatest opportunities. Carrion Crow *Corvus corone*, Long-tailed Tit *Aegithalos caudatus* and Magpie *Pica pica* were observed off-site within the woodland and Common Moorhen *Gallinula chloropus* and Coot *Fulica atra* were recorded on the Grand Union Canal. Egyptian Goose *Alopochen aegyptiaca* and Black-headed Gull *Chroicocephalus ridibundus* were additionally recorded flying along the canal. It is considered that birds would not be reliant on the site for any reason. Feral Pigeon *Columba livia* were noted roosting / nesting within Building B1b.

Reptiles

2.5.8. The habitats on-site are unsuitable for reptiles and the area is isolated from any suitable reptile habitat. Reptiles are considered absent from the site.

Amphibians

2.5.9. The site is devoid of aquatic habitat and terrestrial habitat is very limited, with opportunities focused in the small woodland area to the northwest, which extends off-site. The canal offers sub-optimal habitat due to the presence of flowing water and is devoid of aquatic vegetation, making it unsuitable for breeding amphibians. There are no ponds within 500m of the site boundary. The site is not suitable for Great Crested Newt.

Invertebrates

2.5.10. Given the site's habitats and urban surroundings, it is likely a limited assemblage of common invertebrate species would be present within the site; there is no reason to believe that any rare or notable species would be present.

3. Habitat Enhancements

3.1. To provide habitat enhancements within the site, a series of new planting is to be undertaken (see Plan ECO3).

3.2. Species-rich Grassland

3.2.1. Flower-rich grassland is to be established along the northern site boundary. The grassland will include a predominantly native seed mix and wildflower species of known value to wildlife. Species will provide replacement and additional nectar resources for invertebrates which in-turn, will benefit foraging bats. Grassland will also be of benefit to commuting and foraging Hedgehogs.

3.2.2. Newly sown grassland will be mown regularly throughout the first year of establishment to a height of 40-60mm. This will control annual weeds and help maintain balance between faster and slower developing species. During this period, cuttings will be removed, if dense, and residual perennial weeds will be carefully dug out or spot treated.

3.2.3. In subsequent years, traditional meadow management will be pursued. This will include a single cut to 50mm after flowering in August. The cuttings will then be left to dry and shed seed for 1-7 days.

3.3. Amenity Grassland

3.3.1. Amenity grassland is proposed in the west of the site. These areas will be relatively species-poor and highly managed to maintain a formal aesthetic. They will be mown regularly. The grassland will provide some foraging opportunities for Hedgehogs, birds and invertebrates.

3.3.2. The grass cuttings will be collected and removed, in order to reduce nutrient enrichment and encourage low-growing plants to flourish. Where necessary, reinstatement by seeding will be undertaken where establishment is unsuccessful.

3.4. Pond

3.4.1. A pond will be established in the southeast of the site. This should be planted with primarily native species suited to wet ground conditions and will increase the floristic diversity of the site and provide potential habitat to amphibians in their terrestrial phase, in addition to foraging opportunities for invertebrates.

3.4.2. The area will be managed to promote floristic diversity. The area will be monitored for the first five years after establishment and, where areas are found to be deteriorated or barren, they will be over-seeded with the same seed mix / planting as before.

3.4.3. In the first year of management, cutting of annual weeds will be avoided until mid to late summer. This will ensure sown seedlings are protected by annual weeds, which will be beneficial for invertebrates.

3.4.4. The annual weeds will be cut in early August. Any unwanted species such as Docks will be removed, and any arisings taken away from the site. The area can then be mown / managed through to the end of March the following year.

3.4.5. Following the initial year, the vegetation will be managed to allow for species to grow tall, flower and seed from May through to July / August. A cut will then be taken and the plant species cut in mid-autumn and mid-spring thereafter.

3.4.6. Following any grassland maintenance all arisings will be left in situ for five days to allow seed release and ensure the continued renewal of the floristic diversity of the site. The arisings will then be turned and removed from site to prevent nutrient enrichment at the detriment to floristic diversity.

3.4.7. Litter and rubbish will be removed from the grassland as necessary during the on-going management if the site.

3.5. Brown Roof

3.5.1. An extensive substrate based brown roof with a settled substrate depth of 80mm minimum (or 60mm beneath the vegetation blanket) will be installed upon the proposed UP4 building. This habitat will support the delivery of green infrastructure across the site, offering heightened opportunities for invertebrate species.

3.5.2. Brown roofs require little maintenance and no irrigation. Biannual checks should be conducted to remove sapling trees and invasive shrubs such as Buddleia, clear unwanted weeds and check the irrigation systems, gutters and drains.

3.6. Ornamental Planting

3.6.1. Areas of flower-rich perennial planting will be established across the site as part of the development. Planting is to constitute primarily of native species and species of known value to wildlife. Plants will provide nectar resources for pollinating invertebrates, which will subsequently benefit bats and birds. The planting will additionally provide shelter and foraging opportunities for Hedgehogs.

3.6.2. Ornamental planting areas shall be planted to a depth of 400mm and incorporate 50mm depth of compost to all beds. Planting areas will be cultivated to provide tilth free from rubbish, large stones, and clods prior to planting. Plants will be watered regularly to facilitate establishment. Mulch will be spread over all planting areas to a depth of 25mm and around the plants avoiding contact with the plant leaves. This will occur during the construction phase of the development.

3.6.3. Subsequent monitoring will be required to ensure new plants are establishing. Any newly planted specimen which dies will be replaced in the following season with the same species to the same specification and quality. Checks will occur every six months for the first two years after planting, then annually up to five years after planting.

3.7. Native Hedgerow

3.7.1. New native hedgerow is proposed as part of the development, to delineate a well-being area (which includes the proposed pond) in the southeast of the site. Hedgerows will be one or two shrubs wide and consist of native species with

known benefit to wildlife. Once established, hedgerows may also provide suitable foraging and commuting corridors for bats and Hedgehogs. They will facilitate greater connectivity between the site and wider landscape. Hedgerow planting shall follow the same procedure as ornamental planting (see above).

3.7.2. Subsequent monitoring will be required to ensure that new plants are establishing. Any newly planted specimen which dies should be replaced in the following season with the same species to the same specification and quality. Checks should occur every six months for the first two years after planting, then, annually up to five years after planting.

3.8. Trees

3.8.1. New trees will be planted throughout the site, principally situated around the pond to the southeast and adjacent to the retained woodland to the west. Proposed trees will include a range of native species that will likely provide foraging and nesting opportunities for birds and invertebrates.

3.8.2. Planting of new trees will be undertaken during the autumn, winter, or spring. All stones and weeds will be removed from the tree planting area prior to planting. For each tree root ball, a hole will be dug the same depth as the tree root ball and three times the width of the root ball. The root ball will be soaked before planting and some of the tree roots loosened from the root ball before placing in the dug hole.

3.8.3. A weed-free ring (500 mm) will be maintained around each tree planted for the first five years to reduce competition from weed-species for light and nutrients. To enforce this, 'Melcourt' pine ornamental grade bark mulch (or similar) shall be used to a depth of 75mm around the base of each tree.

3.8.4. Over time as the trees grow, they will become more valuable for wildlife. When the tree saplings grow, annual pruning / trimming may sometimes be necessary, which will be completed outside the bird nesting season (March to August inclusive), or after a suitably qualified ecologist has undertaken checks to ensure no nesting birds are present. However, the trees should be relatively management free.

3.8.5. The young trees will be watered well and on a regular basis for the first year following planting to ensure satisfactory establishment and then only when necessary to avoid death.

3.8.6. Subsequent monitoring will be required in order to identify if the tree saplings have survived. Any newly planted specimen which dies will be replaced in the following season with the same species to the same specification and quality. Checks will occur every six months for the first two years after planting. Then, annually up to five years after planting.

4. Species Enhancements

4.1. To provide ecological enhancements for wildlife within the site, a number of bat and insect boxes will be installed, as well as Hedgehog hibernacula and Gateways. Plan ECO3 details the locations of proposed species enhancements.

4.2. Bats

4.2.1. Four bat boxes (One Schwegler 2F, One Schwegler 2FN and Two Chavanage Cavity Bat Boxes, or similar; see Appendix 1) will be affixed to retained trees within the on-site and off-site woodland. These bat boxes are self-cleaning, with little maintenance required. In the unlikely event that there is a structural defect to the boxes, repairs will be made according to the manufacturer's recommendations and carried out by a licenced ecologist.

4.2.2. The bat boxes will be positioned at a minimum height of 3m above ground level, away from significant lighting and orientated in a southern, southeastern, or southwestern direction to provide enough warmth. Once securely mounted onto retained trees, these bat box models will be virtually maintenance free, since bat droppings will simply drop out.

4.2.3. Bat boxes will be checked once per year for the first five years following installation. A suitably qualified and licensed bat worker will ensure bat boxes are still in situ, with arrangement made for replacement if found to be damaged or missing. To limit the likelihood of disturbing any bats, checks should be carried out in February or March, prior to bats occupying the boxes, as they often only use bat boxes in summer and move elsewhere for hibernation roosts.

4.2.4. No future monitoring (after five years) of the bat boxes is considered necessary since no bat roosting sites will be lost as a result of the development.

4.3. Hedgehogs

4.3.1. In order to facilitate dispersal across the site and wider Union Park development, any new fences will include 'Hedgehog Gateways' (see Appendix 2). These are 13cm x13cm sections of fence cut out at the base, at regular intervals, to facilitate dispersal.

4.3.2. Hedgehog Gateways will be checked periodically for the first five years following installation, by a suitably experienced ecologist, to ensure that they remain unobstructed and are not damaged.

4.3.3. Two log piles will be created to provide shelter and hibernation opportunities for Hedgehogs (see Appendix 3). These will be established during construction in a discreet location, within suitable habitat, preferably in the retained woodland to the west of the site, and within the off-site woodland to the south. These should be established from materials sourced on-site during construction where possible.

4.3.4. No monitoring or management of the hibernaculum will be required once they have been established.

4.4. Birds

4.4.1. To provide additional nesting opportunities, two bird boxes will be installed onto retained trees in the on-site and off-site woodland. Models will include Vivara Seville Woodstone Nest Box 28mm and Vivara Seville Woodstone Nest Box 32mm or similar; see Appendix 4). These will be installed onto suitable trees using a 'tree friendly' aluminium nail.

4.4.2. All bird boxes will be positioned high up on trees (a minimum height of 2-3m above ground level) and orientated to face north/northeast to provide enough shelter from excessive sunlight. Once securely mounted onto the trees, these bird box models will be virtually maintenance free and can be used for years without cleaning.

4.4.3. Bird boxes will be checked periodically (once per year in February) for the first five years following installation. A suitably experienced ecologist will ensure bird boxes are still in situ and are not damaged. Checks for signs of structural damage should be undertaken outside the nesting season (March to August inclusive) by a suitably qualified ecologist. Boxes will be replaced if found to be damaged or missing.

4.4.4. No future monitoring of the bird boxes is considered necessary since no known nesting sites will be lost as a result of the development.

4.5. Invertebrates

4.5.1. The landscaping scheme will provide habitats of value to invertebrates via the planting of native plants and species of know value to pollinating insects. Two insect boxes (National Trust CJ Wildlife Apex Insect Houses, or similar; see Appendix 5) will be installed post-construction, adjacent to the retained woodland and vegetation surrounding the proposed pond.

4.5.2. The nest boxes will be installed adjacent to areas of suitable planting, to ensure immediate foraging resources, and will be angled in a southerly direction to ensure sufficient warmth. These boxes will provide shelter, nesting and overwintering opportunities for invertebrate groups including solitary bees, wasps and hoverflies.

4.5.3. The creation of log piles as detailed for Hedgehogs above, will provide resources for saproxylic invertebrate species such as Stag Beetle *Lucanus cervus*.

4.5.4. No monitoring or maintenance work is required for the insect boxes.

5. Schedule of Ecological Works

Table 5.1. Proposed Habitat Enhancements and Management.

Proposed Habitats	Management Prescription	Timing of Works
Flower-rich Grassland	Seeding of flower-rich grassland	Removal of undesirable species. Soil shall be levelled (minimum 150mm depth). New grassland seeding should occur as per manufacturer's guidance during autumn, winter or spring prior to, or within 12 months of the completion of the development.
	Subsequent monitoring including the removal of litter and debris	Bi-monthly monitoring visits are required for the first five years. Where found to have deteriorated the same seed mix will be reapplied in the next suitable season. Litter and debris to be removed as necessary.
	Watering	To occur as necessary during periods of drought to ensure satisfactory establishment and the maintenance of healthy plant growth.
	Cutting	To be mown regularly within the first year of establishment, to a height of 40-60mm to control annual weeds and help maintain balance between faster and slower developing species. Cuttings to be removed and residual perennial weeds to be carefully dug out or spot treated. From year two onwards, grassland to be cut annually to a height of 50mm after flowering in July or August.
Amenity Grassland	Seeding of amenity grassland	Removal of undesirable species. Soil shall be levelled (minimum 150mm depth). New grassland seeding should occur as per manufacturer's guidance during autumn, winter or spring prior to, or within 12 months of the completion of the development.
	Subsequent monitoring including the removal of litter and debris	Bi-monthly checks for colonisation of undesirable / non-native species required for the first five years. Where necessary, reinstatement seeding will occur where establishment is unsuccessful. Removal of unwanted species to follow best practice methodologies. Litter and debris to be removed as necessary.
	Watering	To occur as necessary during periods of drought to ensure satisfactory establishment and the maintenance of healthy plant growth.

Proposed Habitats	Management Prescription	Timing of Works
	Cutting	Grassland to be mown regularly to maintain formal aesthetic. Grass cuttings to be removed to reduce nutrient enrichment, encouraging growth of low-growing plants.
Pond	Seeding of wet grassland / species planting	Removal of undesirable species. Soil shall be levelled (minimum 150mm depth). New grassland seeding should occur as per manufacturer's guidance during autumn, winter or spring prior to, or within 12 months of the completion of the development.
	Subsequent monitoring including the removal of litter and debris	Seeding found to have not established during bi-monthly health visits between March and September will be reseeded with the same seed mix / planting in autumn, winter or spring. Monitoring visits required for the first five years. Litter and debris to be removed as necessary.
	Watering	Regular watering will occur weekly during the main growing season (May to September inclusive) and only as required outside these months.
	Cutting	Cutting of annual weeds will be avoided until mid to late summer. Annual weeds will be cut in early August. Any unwanted species such as Docks will be removed and arisings taken away from the site. Grass then mown / area managed through to end of March the following year. Following initial year, vegetation managed to allow species to grow tall, flower and seed from May through to July / August. A cut will then be taken and plant species cut in mid-autumn and mid-spring thereafter. Following grassland maintenance, arisings left in situ for five days and then taken away from site.
Brown Roof	Establishment of brown roof upon UP4 building	Implemented prior to occupation of any part of the development. Settled substrate depth of 80mm minimum (or 60mm beneath the vegetation blanket) to be installed.
	Subsequent monitoring including the removal of weeds and debris	Spot weeding of any undesirable / invasive species and weeds to occur biannually. Litter and debris to be also to be removed as necessary from gutters and drains.

Proposed Habitats	Management Prescription	Timing of Works
Ornamental Planting	Planting of ornamental plant species	Planting during autumn, winter or spring prior to, or within 12 months of the completion of the development. Planted to 400mm depth, with supply of 50mm depth compost and 25mm mulch.
	Subsequent monitoring including the removal of litter and debris	Health checks every six months for first two years after planting, then annually up to five years after planting. Any newly planted specimen which dies will be replaced in the following season with the same species to the same specification and quality. Litter and debris to be removed as necessary.
	Watering	Watered regularly to facilitate establishment.
Hedgerows	Planting of hedgerows	Planting during autumn, winter or spring prior to, or within 12 months of the completion of the development. Planted to 400mm depth, with supply of 50mm depth compost and 25mm mulch.
	Subsequent monitoring including the removal of litter and debris	Health checks every six months for first two years after planting, then annually up to five years after planting. Any newly planted specimen which dies will be replaced in the following season with the same species to the same specification and quality. Litter and debris to be removed as necessary.
	Watering	Watered regularly to facilitate establishment.
Trees	Planting of new native and ornamental trees	Planting during autumn, winter or spring prior to, or within 12 months of the completion of the development. Stones and weeds removed prior to planting. Hole dug the same depth as tree root ball and three times the width of root ball. Root ball soaked before planting. Weed-free ring (500 mm) maintained around each tree for first five years. Mulch (75mm depth) used around each tree.
	Subsequent monitoring including the removal of litter and debris	Regular health checks of trees every six months for the first two years after planting, then annually up to five years after planting. Newly planted specimens which die will be replaced in following season with same species to same specification and quality. Litter and debris to be removed as necessary.

Proposed Habitats	Management Prescription	Timing of Works
	Tree pruning / maintenance	Undertaken annually as necessary but outside nesting bird season (March to August inclusive) or following nesting bird check by suitably qualified ecologist.
	Watering	Regularly for first year and then only when necessary to avoid death.

Table 5.2. Proposed Species Enhancements and Management.

Species	Enhancement	Management
Bats	Four bat boxes will be installed onto retained trees within on-site and off-site woodland	To be installed during the construction phase. To be checked once annually for first five years in February or March by licenced ecologist.
Hedgehogs	Hedgehog Gateways within new fencing	Integrated during construction. To be checked periodically for first five years following installation by suitably experienced ecologist.
	Log Piles installed within on-site and off-site woodland	Established during construction, using materials from construction, where possible. No maintenance or monitoring required post-establishment.
Birds	Two nest boxes will be installed onto retained trees within on-site and off-site woodland	Installed during the construction phase. Boxes checked periodically (once per year in February) for first five years following installation, by a suitably experienced ecologist. Checks for damage undertaken at least once a year outside nesting season (March to August inclusive) for first five years following installation.
Invertebrates	Two insect boxes to be installed adjacent to on-site woodland and around proposed pond.	Installed post-construction in areas adjacent to suitable habitat. No maintenance or monitoring required post-installation.

6. Persons Responsible for Implementing the Works

6.1. Ark UP4 Limited has ultimate responsibility for the implementation of this scheme. It is the responsibility of the appointed individual at Ark UP4 Limited to instruct appropriate experienced contractors to establish the various features and protective measures proposed, and also the responsibility of the appointed individual to instruct appropriate experienced ecologists and / or landscape contractors to check the work.

6.2. Clear communication channels between these parties and their associates on the ground will be in operation at all times, by email and telephone as appropriate.

7. Summary and Conclusions

7.1. Ecology Solutions was commissioned in October 2024 by Ark UP4 Limited to provide an Ecological Enhancement Scheme for the site at Union Park, land at Bulls Bridge Industrial Estate, Hayes, UB3 4QQ.

7.2. A data centre block (UP4) is proposed to the west of the wider Union Park site. This block will adjoin to the permitted UP3 block and will include an accompanying energy centre with associated landscaping and infrastructure.

7.3. Proposals include the delivery of new areas of species-rich grassland, amenity grassland, a pond, brown roof, ornamental planting, hedgerow and individual tree planting. Management prescriptions, as detailed in this document, will ensure the delivery of these new habitats to a high standard that will maximise the provision of biodiversity value.

7.4. **Bats.** New green infrastructure and landscaping will attract invertebrate prey items to the site for bats. Retention of woodland in the west of the site will provide continued opportunities for foraging and commuting bats. In addition, four bat boxes will be provided which will enhance roosting opportunities for bats on and directly adjacent to the site.

7.5. **Hedgehogs.** Newly erected fences will include 'Hedgehog Gateways' to facilitate dispersal throughout the site. Provision of log pile hibernacula will provide sheltering and hibernation opportunities for Hedgehog.

7.6. **Birds**. New tree, hedgerow and ornamental planting will provide nesting and foraging opportunities for birds. Given the birdstrike risk associated with the site, no nest boxes are proposed. Two nest boxes will be installed as part of the development, providing new opportunities for songbirds.

7.7. **Invertebrates.** Two insect boxes will be incorporated into the development, providing suitable shelter, nesting and overwintering opportunities for invertebrates. New landscaping will additionally increase the floristic diversity at the site, providing greater opportunities for insects.

7.8. This report details the ecological enhancement measures to be implemented at the site and the management requirements necessary to ensure that these measures are provided in the long term. Overall, it is considered that the site's value to biodiversity will increase post-development.

Plans

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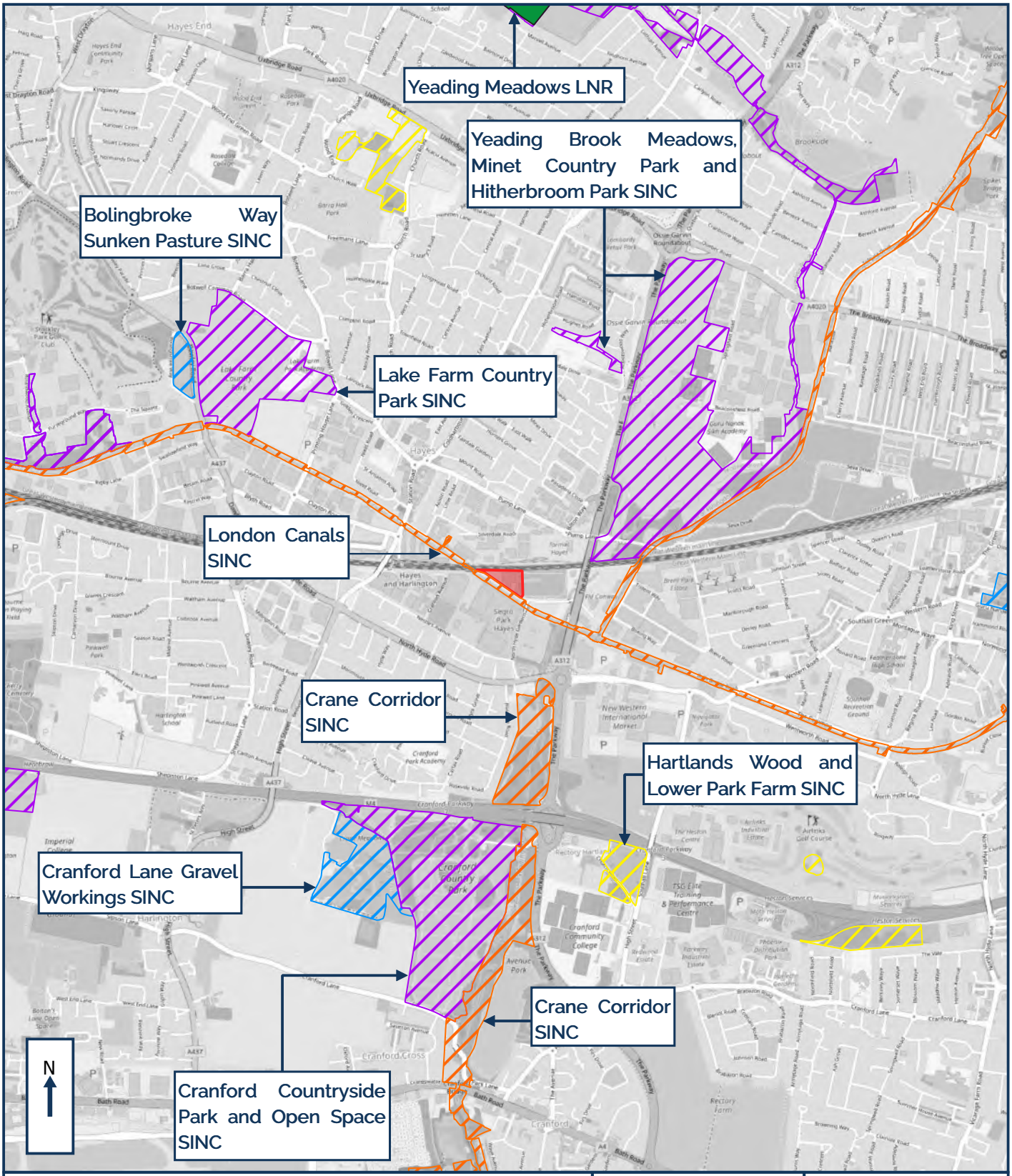
PLAN ECO1

Site Location and Ecological Designations



KEY:

- SITE BOUNDARY
- LOCAL NATURE RESERVE (LNR)

SITES OF IMPORTANCE FOR NATURE CONSERVATION (SINC)

- METROPOLITON IMPORTANCE
- BOROUGH IMPORTANCE GRADE 1
- BOROUGH IMPORTANCE GRADE 2
- LOCAL IMPORTANCE

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11746: UP4, UNION PARK, LAND AT BULLS BRIDGE INDUSTRIAL ESTATE, HAYES, UB3 4QQ

PLAN ECO1: SITE LOCATION AND ECOLOGICAL DESIGNATIONS

Rev: A

Nov 2024

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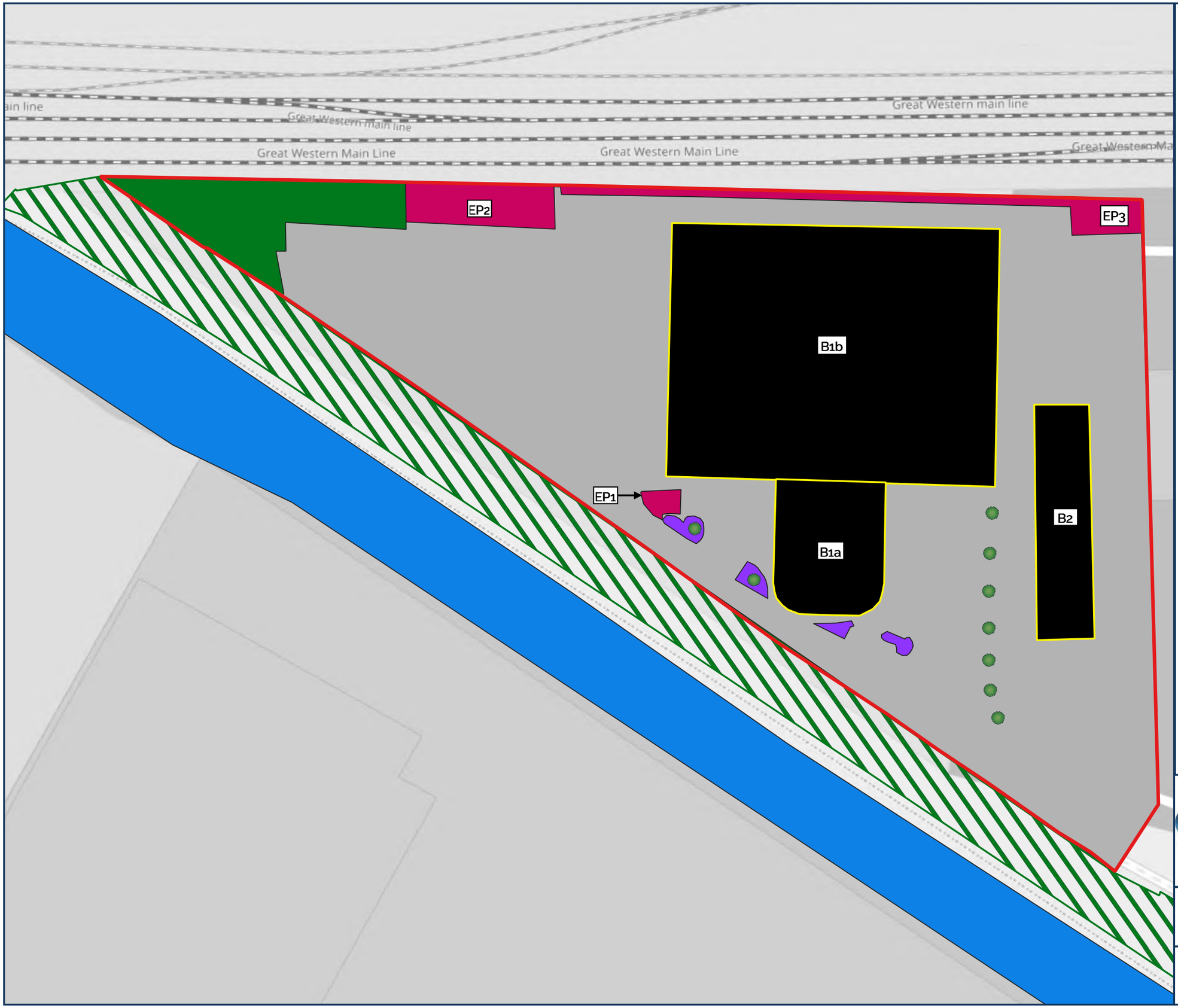
PLAN ECO2

Ecological Features



KEY:

- SITE BOUNDARY
- DEVELOPED LAND; SEALED SURFACE
- INDUSTRIAL BUILDING
- OTHER BROADLEAVED WOODLAND
- RUDERAL OR EPHEMERAL
- INTRODUCED SHRUB
- INDIVIDUAL TREE

OFFSITE HABITATS

- GRAND UNION CANAL
- OTHER BROADLEAVED WOODLAND

N

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PLAN ECO2: ECOLOGICAL FEATURES

Rev: A

Dec 2024

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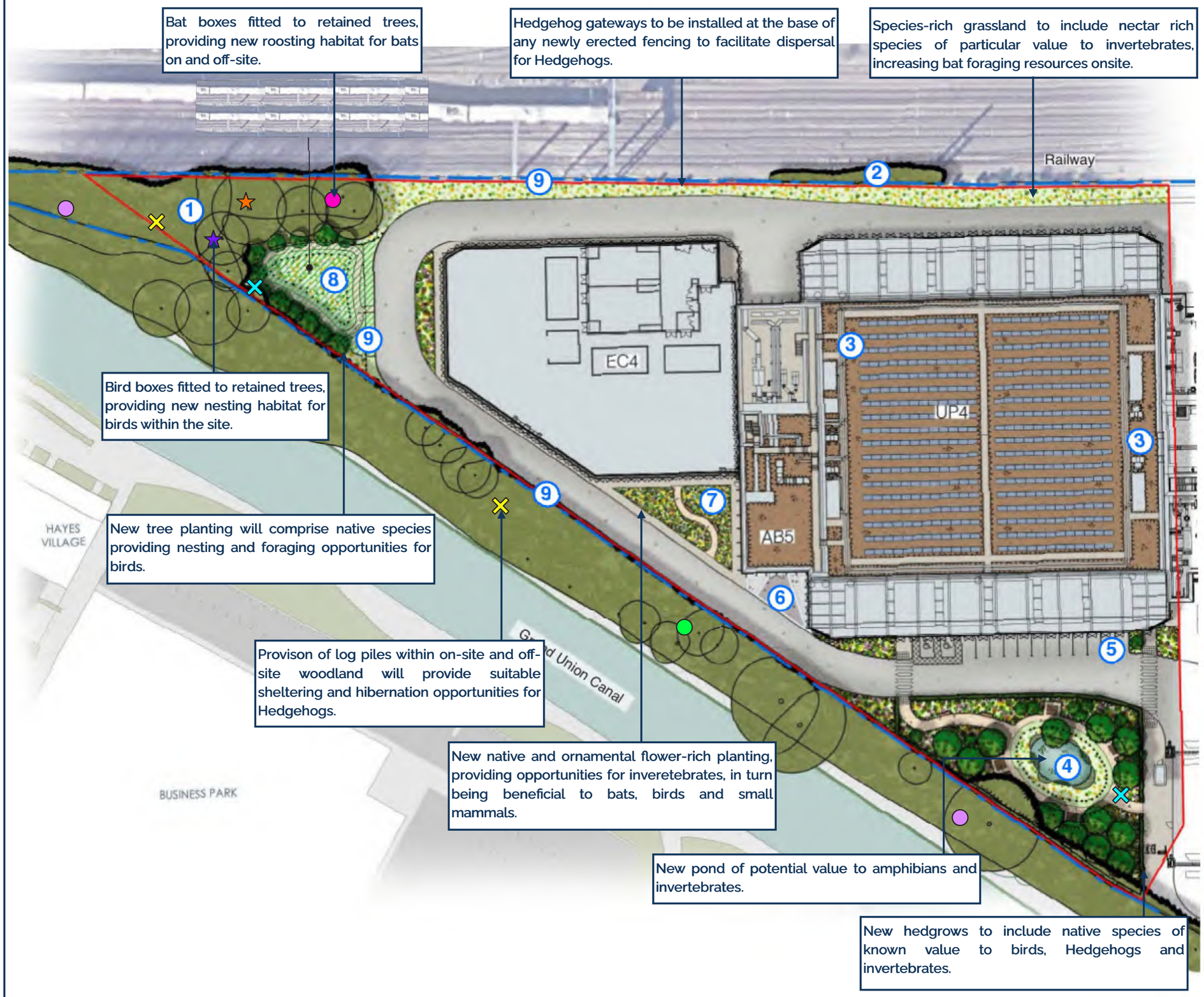
PLAN ECO3

Ecological Enhancement Strategy



KEY:

- SITE BOUNDARY
- BAT BOX - SCHWEGLER 2F
- BAT BOX - SCHWEGLER 2FN
- BAT BOX - CHAVANAGE CAVITY BAT BOX
- HEDGEHOG LOG PILE
- BIRD BOX - VIVARA SEVILLE WOODSTONE 28MM
- BIRD BOX - VIVARA SEVILLE WOODSTONE 32MM
- INSECT HOUSE - NATIONAL TRUST CJ WILDLIFE INSECT HOUSE

Based on Plan:
Block 4 Landscape Masterplan
(MWL-0474-SEW-ZZ-DR-L-100003 P12
-Murdoch Wickham)

N

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PLAN ECO3: ECOLOGICAL ENHANCEMENT SCHEME

Rev: A

Feb 2025

Appendices

APPENDIX 1

Bat Box Specifications

Bat Boxes

Schwegler bat boxes are made from ‘woodcrete’ and have the highest rates of occupation of all types of box. The 75% wood sawdust, clay and concrete mixture is ideal, being durable whilst allowing natural respiration and temperature stability.
All boxes are rot and predator proof and extremely long lasting.

2F Bat Box

A standard bat box, attractive to the smaller British bat species. Simple design with a narrow entrance slit on the front.

Woodcrete construction, 16cm diameter, 33cm height.

2FN Bat Box

A large bat box featuring a wide access slit at the base as well as an access hole on the underside. Particularly successful in attracting Noctule, Bechstein’s and Brown Long-eared bats.

Woodcrete construction, 16cm diameter, 36cm height .

Made from FSC timber, natural timber bat boxes are solid, high quality and durable and able to provide excellent insulation for roosting bats.

Chavenage Cavity Bat Box

A natural timber bat box designed to provide a roost for a variety of crevice dwelling species including Pipistrelle, Noctule, Leisler’s, Natterer’s, Daubenton’s and Brown Long-eared bats.

Natural timber construction.
Width: 178mm
Height: 425mm
Weight: 1.22kg

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APPENDIX 2

Hedgehog Gateway Specifications

Hedgehog Gateways

A 13 x 13 cm section cut out at the base of the gravel board or directly into the fence panel creating links between residential gardens and the surrounding landscape.

This will facilitate the dispersal of Hedgehogs and other small animals and enhance the permeability of the new development for wildlife.

Signposting the features seeks to inform residents and aid the features retention and function.

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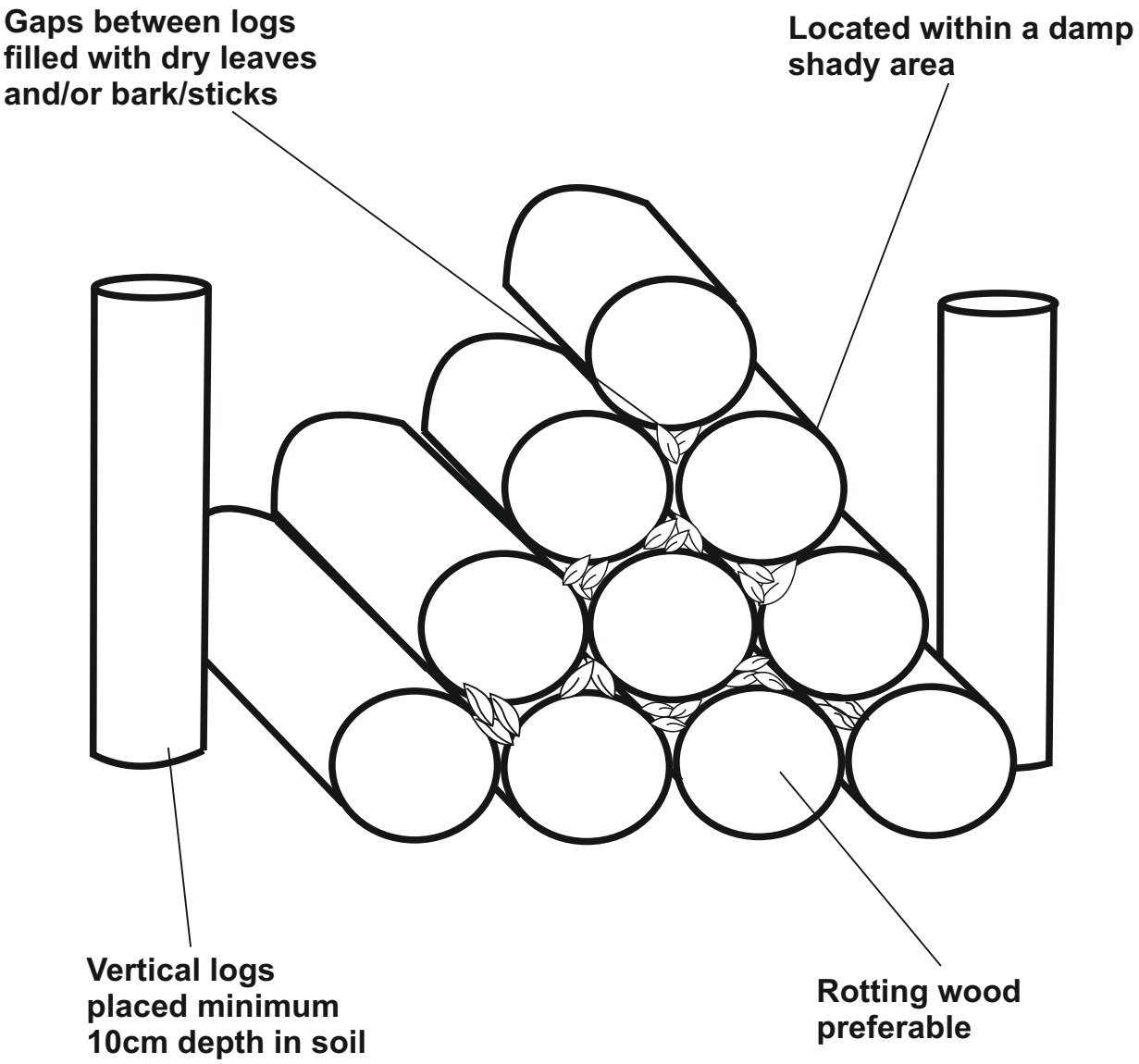
APPENDIX 3

Hedgehog Log Pile Specifications

Hedgehog Log Pile



A good Hedgehog log pile will be placed in a shady spot using logs placed within a pyramid structure. With vertical logs placed into the ground (at a depth of at least 10cm) at either end to prevent logs from falling. Gaps between logs should contain dry leaves, these gaps can also contain bark and/or sticks. The log pile will preferable be placed in a damp location and be kept damp during dry spells to encourage a good invertebrate community for foraging Hedgehogs.

No minimum size required but large enough to attract a good invertebrate population.

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HEDGEHOG LOG PILE SPECIFICATION

APPENDIX 4

Bird Box Specifications

Bird Boxes

Woodstone boxes are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting.
Boxes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.

Woodstone Seville Nest Box 32mm and 28mm entrance

These Woodstone Seville Nest Boxes are ideal for accommodating Great Tit, Blue Tit, Tree Sparrow, Pied Flycatcher, Redstart, House Sparrows and Crested Tit.

Woodstone construction
Width: 210mm
Height: 305mm
Depth:190mm
Entrance: 32mm and 28mm
Weight: 6kg


32mm entrance


28mm entrance

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APPENDIX 5

Insect Box Specifications

Insect Box

The National Trust Insect House is constructed of wood and offers refuge for a variety of insects.

National Trust CJ Wildlife
Apex Insect House

A nest box for a variety of invertebrates including solitary bees and wasps.

Wood construction
Width: 260mm
Height: 280mm
Depth:110mm

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